

(b) If plates are clad with material having tensile strength properties at least equal to the base plate, the cladding may be considered a part of the base plate when determining thickness. If cladding material does not have tensile strength at least equal to the base plate, the base plate alone shall meet the thickness requirement.

(c) When aluminum plate is used, the minimum width of bottom sheet of tank shall be 60 inches, measured on the arc, but in all cases the width shall be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the bolster.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21344, Nov. 6, 1971]

§ 179.100-7 Materials.

(a) *Steel plate:* Steel plate materials used to fabricate tank shell and manway nozzle must comply with one of the following specifications with the indicated minimum tensile strength and elongation in the welded condition. The maximum allowable carbon content must be 0.31 percent when the individual specification allows carbon greater than this amount. The plates may be clad with other approved materials.

| Specifications | Minimum tensile strength (p.s.i.) welded condition ¹ | Minimum elongation in 2 inches (percent) welded condition (longitudinal) |
|-------------------------|---|--|
| AAR TC128, Gr. B | 81,000 | 19 |
| ASTM A 302, Gr. B | 80,000 | 20 |
| ASTM A 516 | 70,000 | 20 |
| ASTM A 537, Class 1 ... | 70,000 | 23 |

¹ Maximum stresses to be used in calculations.

(b) *Aluminum alloy plate:* Aluminum alloy plate material used to fabricate tank shell and manway nozzle must be suitable for fusion welding and must comply with one of the following specifications with its indicated minimum tensile strength and elongation in the welded condition.

| Specifications | Minimum tensile strength (p.s.i.) 0 temper, welded condition ^{3,4} | Minimum elongation in 2 inches (percent) 0 temper, welded condition (longitudinal) |
|-------------------------------------|---|--|
| ASTM B 209, Alloy 5052 ¹ | 25,000 | 18 |
| ASTM B 209, Alloy 5083 ² | 38,000 | 16 |

| Specifications | Minimum tensile strength (p.s.i.) 0 temper, welded condition ^{3,4} | Minimum elongation in 2 inches (percent) 0 temper, welded condition (longitudinal) |
|-------------------------------------|---|--|
| ASTM B 209, Alloy 5086 ¹ | 35,000 | 14 |
| ASTM B 209, Alloy 5154 ¹ | 30,000 | 18 |
| ASTM B 209, Alloy 5254 ¹ | 30,000 | 18 |
| ASTM B 209, Alloy 5454 ¹ | 31,000 | 18 |
| ASTM B 209, Alloy 5652 ¹ | 25,000 | 18 |

¹ For fabrication, the parent plate material may be 0, H112, or H32 temper, but design calculations must be based on minimum tensile strength shown.

² 0 temper only.

³ Weld filler metal 5556 must not be used.

⁴ Maximum stress to be used in calculations.

(c) *High alloy steel plate.* (1) High alloy steel plate must conform to the following specifications:

| Specifications | Minimum tensile strength (p.s.i.) welded condition ¹ | Minimum elongation in 2 inches (percent) weld metal (longitudinal) |
|--|---|--|
| ASTM A 240/A 240M (incorporated by reference; see § 171.7 of this subchapter), Type 304L | 70,000 | 30 |
| ASTM A 240/A 240M (incorporated by reference; see § 171.7 of this subchapter), Type 316L | 70,000 | 30 |

¹ Maximum stresses to be used in calculations.

(2)(i) High alloy steels used to fabricate tank must be tested in accordance with the following procedures in ASTM Specification A262 titled, "Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steel," and must exhibit corrosion rates not exceeding the following:

| Test procedures | Material | Corrosion rate i.p.m. |
|------------------|------------------------|-----------------------|
| Practice B | Types 304L and 316L .. | 0.0040 |
| Practice C | Type 304L | 0.0020 |

(ii) Type 304L and 316L test specimens must be given a sensitizing treatment prior to testing.

(d) All attachments welded to tank shell must be of approved material which is suitable for welding to the tank.

[Amdt. 179-10, 36 FR 21344, Nov. 6, 1971, as amended by Amdt. 179-32, 48 FR 27707, June 16, 1983; Amdt. 179-47, 58 FR 50237, Sept. 24, 1993; Amdt. 179-52, 61 FR 28679, June 5, 1996; Amdt 179-52, 61 FR 50255, Sept. 25, 1996; 66 FR 45186, Aug. 28, 2001; 67 FR 51660, Aug. 8, 2002]